PETITION

OF

WILLIAM ATKINSON,

FOR

RENEWAL OF

India Rubber Patents,

ORIGINALLY GRANTED

March 8th, 1834, and August 15th, 1835.

NEW YORK:
TURNER & CO., PRINTERS, 10 SPRUCE STREET.
1856.

PETITION

TO THE HONORABLE THE SENATE AND HOUSE OF REPRESENTATIVES OF THE UNITED STATES OF AMERICA.

The Petition of William Atkinson of the city of Brooklyn, County of Kings, and State of New York, respectfully shows:

That he is the inventor of a certain useful mode of manufacturing water-proof boots, shoes, socks, and overshoes, and other articles of similar character, of India Rubber, and also of another useful improvement for a machine patented for spreading India Rubber on cloth or otherwise, which machine mastic:ated and ground the rubber, preparing it for use, for which several inventions patents were issued to your petitioner, under the seal of the United States of America, and the signature of the President, on the Eighth day of March, in the year one thousand eight hundred and thirty-four, and the fifteenth day of August in the year one thousand eighth hundred and thirty-five, respectively, set forth more particularly in the Journal of the Franklin Institute in vol. xiv, pages 194, 195, and vol. xvii, pages 270, 271, 272, and for which said expired patents your petitioner prays for a renewal—on the following grounds :

Your petitioner commenced the manufacture of India Rubber Boots, Shoes, and other articles, as early as the years 1833 and '34, and was the earliest to attain any degree of success in such manufacture, having opened a large factory on the Concord River, at the end of the bridge, foot of Church street, at Tewksbury (now Lowell) in the State of Massachusetts, where he carried on the business for one and a half or two years. The method then adopted by your petitioner (essentially the same as now employed) was to form a sufficient coat on the body of cloth, felt, leather, or other article to be covered, and then attaching thin sheets of rolled or sheet rubber, slightly softened by the use of spirits of turpentine and alcohol or camphene together, and by the same process attaching the soles and heels to boots, shoes, &c., made of felt cloth, woolen

or cloth fabrics, and such fabrics were put again into a hot room, to be cured by heat In making sheets for this use the rubber was spread or rolled upon cloth, by means of, and after grinding and masticating in said machine, designed for spreading Caoutchouc and drying the same on a steam cylinder, whereby from 80 to 90 per cent of the solvents theretofore in use were saved: it being borne in mind that previous to your petitioners said invention the necessarily large per centage of solvents cost more than the India Rubber, besides making it difficult to properly cure the goods manufactured and prejudicial to the health of the workmen. Your petitioner was induced to experiment, and led to the invention of said machine, to obviate the three principal difficulties above mentioned. At this time several large associations, with capitals representing over a million of dollars, had started at Roxbury, Massachusetts, and various other places, and were pursuing these manufactures, by dissolving the Rubber in spirits of turpentine, and either spreading the same with a brush, or scraping it upon cloth in the dissolved state, and then evaporating the spirits—the cloth or goods so manufactured being spread on frames or reels—destroying completely the tenacity of the Rubber, and finally breaking up those concerned, and the loss of capital invested.

By this machine the Rubber was prepared or masticated together—the compounds being mixed in, in order to make the whole uniform before spreading. And this could be done in no other way, as it was impossible to stir in the mixtures, with the extremely small amount of solvent contemplated to be used, without grinding it in before spreading. Even then success would not attend the operation without adding a powerful heat by means of the steam cylinder spreading rollers. This was the first INVENTION of that character, and it produced a complete revolution in the business of India Rubber manufactures; *nor has any plan been since discovered to masticate and mix the Rubber and ingredients, except in the mode so patented by your petitioner.* The invention of Edwin M. Chaffee (which was patented more than a year later, viz. August 31st, 1836, a renewal granted therefor, and an application now pending for a second renewal) was substantially a copy of your petitioners said invention. In your petitioner's machine the Rubber could be masticated and spread by using a very trifling amount of solvent; machines of greater size and power would have enabled him

to grind the Rubber without any solvent. Still the great desideratum of saving 90 per cent of solvent had been already gained by your petitioners said invention, and he had therefore only to make larger machines to accomplish the desired results in the manufacture of Rubber articles. The softening of the sheets, and the use of dissolved Rubber, is required in the same manner by all manufacturers in attaching parts together, as that adopted and herein before described by your petitioner.

He employed quite a large number of men and women in making and finishing the work, (although his said inventions caused a great reduction in the manual labor necessary to carry on his operations) and had in use a four to six horse power steam engine for driving his grinding and spreading machinery. At that early day the machines turned out very good articles of India Rubber manufacture, and from the many visitors who came to his establishment, much interest began to be manifested in this business. He used Sheet Rubber, made in his machine from the Rubber of Commerce, in various forms: drawn and cured in separate sheets on cloth, and between cloth, of any required length or thickness, for all kinds of manufactures or fabrics. Hot rooms were used by him for curing his manufactured articles, in addition to the use of his steam cylinders, at a high temperature, and various compounds and litharges were employed—experimentally and otherwise—in the course of manufacture, such as Alcohol, Sulphuric Acid, Gunpowder, Asphaltum, Rectified Spirits of Turpentine, Lamp Black, Charcoal, Naptha, Salæratus, Ivory Black, Bone Dust, Potash, and Resinous Gums. By these means he was daily improving in the quality of his manufactures, but occasionally met with difficulties (still encountered by others in this business) in imperfect curing and dressing, arising from his limited knowledge of chemistry, and his consequent ignorance of the precise proportions of ingredients. His Boot and Shoe Patent before mentioned, now stands recorded as the first patent in the United States for a *definite separate article of India Rubber manufacture* from the Sheet and Slab Rubber of Commerce, and it was the fundamental commencement of this branch of trade, and of the extensive improvements since made.

His machine for spreading (patented in August 1835) operating by a steam engine, shifting pulleys, rollers, &c.,

was arranged and was in operation most of the time he was at Tewksbury, before it was patented. Your petitioner found his said spreading machine too light for the great pressure required to meet his views in the fabrication of Rubber goods, although he succeeded far better than any other India Rubber manufacturer that he had seen at that time, or for several years subsequently: and with such machine, by the use of an exceedingly small portion of turpentine and alcohol, goods were finished more evenly and perfectly than ever before, and the manufacture of India Rubber brought to a high state of perfection. In the midst of this, your petitioner was taken sick and confined to his house for a great length of time, which, together with the embarrassments preceding the financial revulsion of 1836 and 1837, compelled him to the resolution of giving up business.

In consequence of being obliged to give up business at Lowell—from pecuniary difficulties, and owing to the general want of confidence in the Rubber manufactures, which arose from several establishments in addition to the Roxbury having started and manufactured articles of a very inferior character, —your petitioner resolved to go to New York and begin there. He brought his machines with him and hired a large factory in 19th street, and went on purchasing a steam engine of 6 to 10 horse power and other machinery, which was fixed up at an outlay of from $3,000 to $5,000; and also built a larger and more powerful machine for masticating and spreading. With this larger and stronger machine he made articles of a still better quality and materially reduced the solvent, rendering his success more complete—and without encountering so much difficulty in the way of finishing and sufficiently curing the goods. So situated he manufactured waggon covers, car covers, large covers similar to the present tarpaulins, horse covers, carriage cloth, clothing, boots and shoes;—but only to a small extent, except in covers and cloth; which were made with the Rubber between two thicknesses, and also on the outside. Large sales of these goods were made. Orders continued to come in until your petitioner eventually gave up business in New York.

Receiving an application from the Suffolk Rubber Manufacturing Company of Chelsea, East Boston, (represented to be a large and wealthy establishment,) to sell his machinery, quit New York, and accept a salaried agency from them, your petitioner sold his lease and steam engine in New York,—and

the machinery was taken to Boston, according to agreement. The expenses of transferring the machinery to that place, and the changes incident to such employ, were necessarily large; and your petitioner, soon thereafter, assigned certain privileges or rights in all his patents to said Company, in consideration of advances to pay his debts. Your petitioner went into their employ, set up the machinery and was about to commence business for them. The Suffolk Company having secured your petitioners patents by pledge, he was allowed no privileges outside of his own room in the factory. In a short time he was charged with allowing agents from other factories to see his patented machinery, contrary to the rules of the establishment; was called before the Directors, reprimanded, and notified to leave. To that charge he could only reply that he had never given any such permission. However, it was proven that the agent of a Rubber factory had been there and told the watchman, your petitioner had given permission for him to see the machinery at dinner time, when all hands were away. (All the satisfaction your petitioner could get was to find the man who had clandestinely visited the factory, and to have him send word to the Company that he did not know your petitioner, never saw him before, and that it was a very clever trick, and they might help themselves if they could. Your petitioner was, nevertheless, discharged, and his patents lost.) About the same time other companies started and used his machinery, and he had no power to gainsay them.

The Suffolk Company only carried on business for a few weeks, and then failed and and sold their machinery at auction—your petitioners patents being held as part of the Company's assets, and your petitioner's machinery, for spreading, grinding, cutting, &c., was sold at auction, and in this way, became publicly known. After being deprived of his interest in his patents by the failure of the Suffolk Company (to which your petitioner had, as before mentioned, engaged himself and patents) and being unable to redeem, necessity required that he should find other occupation, and he has never since been in a position to assert his rights to the patents for which he desires a renewal. In the India Rubber business he spent all the money his limited means would permit. Shortly after your petitioner obtained his said patent for making boots and shoes, Edwin M. Chaffee got out a patent for the same thing,—which said patent of Chaffee's came

in contestation, and was finally disposed of as being the same as your petitioner's. At this period patents were granted in great numbers, and upon little examination, and your petitioner claims that the fact of a valuable rubber boot and shoe patent, such as your petitioner's, never having been contested, is good evidence of its priority.

After being obliged to relinquish business, and upon his return from the West, still broken in health and spirits, he saw that his patent for making boots and shoes, and his machines for cutting, grinding and spreading, were getting into general use, which have since made fortunes for manufacturers of rubber goods.

He then ascertained, for the first time, that Edwin M. Chaffee had built and was using a machine with powerful rollers, heated by steam (like your Petitioner's aforesaid spreading machine), by means of which the rubber was ground and masticated without solvents, and had obtained a patent for it, without referring to its being novel in principle, or that it was an improvement on the patent previously granted to your petitioner, except that Chaffee claimed a slipping, or grinding motion, not claimed by your petitioner owing to neglect in not setting forth fully the advantages of his machine in forwarding his specifications, but which was readily applicable on his spreading machine, by the use of extra geering wheels wher. masticating, and he had also a separate machine, giving a slipping motion, and which he also sold to the Suffolk Company.

Nothing, however, could be done for the protection of your Petitioner, as all his India Rubber patents were at that time out of his hands in pledge, while those who held the patents in pledge were so situated that it would not have been of sufficient interest to them to have tested Chaffee's pretensions. Hence, he relinquished that business in utter despair.

That the improvements made by your Petitioner changed the whole character of the business, and that he is entitled to be acknowledged as the first successful inventor of the process of manufacturing India Rubber goods, plainly appears from the success attained by him; and it is equally clear that from his improvements and processes have sprung up all the various manufacturers from that time, and the improvements to the present, as also that no radical improvement has been made in the machinery used except in weight and power, and the same plans of working and curing the rubber, and mixing the com-

pounds, still exist for the various uses of the rubber in its dissolved or natural state, or in the softened state as then used by him; and furthermore, that there are now, to a considerable extent, unavoidable failures occuring in the manufacture. His inability to secure to himself the benefits of his discoveries and inventions, at the time, and subsequently, resulted from his embarrassments—mostly in prosecuting and perfecting the business in its early stages—and he was not able, by reason of his embarrassed situation, to contest or bring forward his rights to such discoveries, etc

His first machine, made for spreading the rubber with steam cylinder, was sold to a manufacturer in New Brunswick, New Jersey, about the year 1836, after having been in use one and a half or two years, and anterior to the issuing of the Chaffee patent.

He afterwards attempted to get the patents again from the old Suffolk company, or a renewal. A renewal he could not get, because a portion of the originals had been burnt with the Patent Office. He, however, finally succeeded, about the time of the expiration of the patent for the spreading machine, in getting possession of it to have it renewed.

Under this state of affairs, your Petitioner, about the year 1850 and 1852, caused a petition to be forwarded to Congress for the purpose of procuring a renewal of said patent, but the petition remained before the committee, and the papers are yet on the congressional files with the original patent.

In order to arrive at the value of the patents sought to be renewed, the most certain method would be to look at the course of the trade and see what has been the result. The profits in this business for several years past, have been so enormously large, and the demand for India Rubber goods is so rapidly increasing, that your Petitioner is of opinion he would have realized several hundred thousand dollars, if his circumstances had permitted him to engage extensively in the manufacture of the article, and to carry it on, after the disasters of 1836 and 1837. And he further states that over and above all the profits he ever made in the India Rubber business, he spent at least five thousand dollars of his other means: so that, in fact, he never derived any benefit whatever from the patents which he now seeks to have renewed, or from either of his other India Rubber patents.

These other patents were for cutting and dividing the Rub-

ber to facilitate the masticating operation, for Horse Collars, and for raising sunken vessels by means of Camels,—which patents though useful are not of so much value as the two now sought to be renewed. He therefore humbly prays that Congress would exercise its power in placing him in such a position as to be able to reimburse himself for the money which he has lost by means of his said inventions and discoveries, and also for the time and talents bestowed upon the same—more particularly as others are now reaping fortunes from the use of his patents; and he respectfully refers to the copies herewith, and to the publication of his patents in the Journal of the Franklin Institute particularly, for the manufacture of boots and shoes, and also for his spreading cylinder machine heated by steam, they being published in full, and to the models in evidence to be submitted, and the affidavit of the builders of one of the machines, and to other affidavits and depositions.

Your Petitioner confidently refers to the publication in the Journal of the Franklin Institute as proof of his priority for the inventions claimed, and that their publication at that date is *prima facia* evidence of such improvements: and he humbly asks and petitions that there may be awarded to him a renewal of the patents for the usual term of renewal—and to be entitled to charge a tariff of rates, and sell rights to manufacturers for the use of his inventions, in the same manner as if his patents had not expired, and that a law may be passed to that effect for the renewal asked.

New York, December 2d, 1856.

WILLIAM ATKINSON.

SPECIFICATION of a Patent for an Improved mode of Manufacturing Water-Proof Boots, Shoes, Socks, &c., granted to William Atkinson, Tewksbury, Middlesex County, Massachusetts, March 8, 1834.

[Recorded in Volume XIV, Journal of Franklin Institute, pages 194, 195.]

To all to whom these presents shall come:

Be it known, That I, William Atkinson, of Tewksbury, in the County of Middlesex, and State of Massachusetts, have invented a new and useful, mode of manufacturing Water-Proof Boots, Shoes, Socks and Over-Shoes, and other articles of similar character, and that the following is a full and exact description thereof.

The foundation of the boot, shoe, or sock, over-shoe, is formed of wool, or tow, or a compound of wool and fur made into felt in the same way in which felting is effected in the manufacture of hats. To this material a suitable shape is given by being drawn over a last, or by other means.

I then take a varnish made by dissolving caoutchouc, or India rubber in naptha, the essential oils, or any of the known solvents of that substance, with which I coat over the foundation of felt or cloth; upon this lay a covering of cotton, or linen cloth, or of any kind of cloth suitable to give firmness to the foundation, and to prevent stretching, and upon this I lay coats of the caoutchouc, either in the varnish or otherwise prepared, and made perfectly black, or of any other color, or left to the natural color of the caoutchouc.

For the soles I attach leather, over which the varnish, or the caoutchouc in sheets, may be applied. This method prevents sharp, or other substances cutting through the boot, and gives security and firmness to the sole of the foot, perfectly covering the leather, or canvass, which may be used at the side and bottom. The sheets may be applied by softening the surfaces to be attached with spirits of turpentine, or any of the solvents, to make it tacky. Let them get nearly dry before attaching, and much time will be saved, and the fabric will more quickly become firm.

The heel may be stiffened by cloth, leather, or other material; and the lifts of the heels formed by attaching leather together by the caoutchouc in the nearly dry state of the varnish; or they may be made of the caoutchouc entirely, and attached as before mentioned and described. When boots are formed, I cause the webbing, or leather, of which the straps are made, to pass down the leg of the boot, and reach nearly to the bottom, in order to obviate the stretching of the material of which the boot is formed.

"What I claim, as my invention, is, the application of woolen felt, of wool and fur, or other cloths, or a combination of wool and fur, to the formation of boots, shoes, socks, or overshoes, and articles of similar character, and the covering the same with caoutchouc or India Rubber, in the manner, and for the purposes herein set forth.

WILLIAM ATKINSON.

SPECIFICATION of a Patent for a Machine for Spreading India Rubber upon Cloth. Granted to William Atkinson, Lowell, Massachusetts, 15th Aug. 1835.

[Recorded in Volume XVII., Journal of Franklin Institute, on pages 270, 271, 272.]

To all to whom it may Concern:

Be it known, That I, William Atkinson, of Lowell, in the County of Middlesex and State of Massachusetts, have invented an improved Machine for the purpose of spreading Caoutchouc, or India Rubber in solution, upon cloth or other material, and of drying the same by steam, and I do hereby declare that the following is a full and exact description thereof:

The cloth to be coated with India Rubber is to be made into an endless web, by sewing its two ends together, and other articles, such as skins of leather, may be coated therewith by spreading them on and affixing them to an endless web so made. This web is passed around cylinders, which are made to revolve, and the dissolved Caoutchouc or India Rubber, is spread upon the endless web by the aid of a third

ylinder placed parallel thereto, and nearly in contact with ne of the cylinders around which the endless web passes.

The dimensions of the machine may, of course, vary, according to the width and length of the material to be coated or covered. In designating certain sizes and respective parts, therefore, I do so only for the purpose of facility of description, and of indicating what has been found to answer well in practice.

I make a frame of wood which may be sixteen feet long and three feet six inches wide, the bottom timbers being sufficiently stout to support the carriage and other parts to be presently described. Into the ground sills or lower part of this frame, uprights are mortised, which serve to support a rail on each side, which may be three feet four inches from the floor, leaving, however, the sills sufficiently clear within the uprights to form a railway upon which the rollers of the carriage may traverse back and forth.

Upon suitable supports, at the end of this frame, there is placed two cylinders of metal, usually of cast iron, each of them one foot in diameter, and two feet nine inches long. The axis of these cylinders are in the same horizontal plane, and parallel to each other; around the inner cylinder the web to be coated passes: and the outer cylinder is made adjustable by means of screws or otherwise, so that it may be brought into contact with, or removed to any required distance from the web or cloth. These cylinders are geared together by means of toothed wheels upon their shafts, cut sufficiently deep to admit of the requisite adjustment. The shaft of a pinion by which they are driven has on it a fast and a loose pully; when revolving, they turn inwards.

The second or carriage cylinder, around which the endless web passes, is supported upon a carriage furnished with wheels or rollers, which run upon the lower rails or sills. This cylinder is also to be made of metal, and when used as a drying cylinder it should be larger in diameter—say three feet. A windlass is placed at the back end of the frame, from which ropes pass to the cylinder carriage, serving by means of a winch to draw the carriage, so as to render the cloth taut. Steam is to be admitted into the cylinder by a hollow gudgeon. For this purpose, a steam tube is attached to the gudgeon, its other end passing through a stuffing-box in a larger tube, attached to a boiler, thus admitting of the requisite motion of the carriage.

In order to apply the solution of India Rubber to the cloth, etc., and to confine it to the proper width, we fit two cheeks or pieces of wood or metal, so as to rest upon the two contiguous rollers, one at or near each of their ends, and these, when in their places, convert the rollers into a trough or hopper for containing the solution. The distance of these pieces from each other is regulated by attaching them together by means of a frame or rod at their upper sides, so that they may slide and be affixed in their places by thumb screws or otherwise.

When spreading the Rubber on the cloth, it is necessary to prevent its adhering to the outer roller, and this, among other methods, may be effected by means of wet sponges, or brushes laid along it, or by keeping it wet in any other way.

I intend sometimes to use the drying and the spreading apparatus detached from each other, in which case but two rollers of any convenient size will be employed in the drying process, and steam may then be introduced into each of them.

I intend also, sometimes, instead of the large drying cylinder above described, to cause the cloth to pass over a stationary metallic box, or steam case, in its passage from the spreading to the straining or carriage roller, making the upper surface of this case convex, that the cloth may be kept in close contact with it; the space between the two sides of such box or case need not be more than two or three inches.

What I claim as my invention, and for which I ask letters patent in the above-described apparatus, is a machine for spreading India Rubber upon cloth, constructed and operating substantially in the manner of that herein set forth. I do not claim the mere spreading by means of cylinders, this having been previously done, but I do claim the employment of two cylinders for that purpose connected together, and made to concur in producing this effect, acting upon the principles described.

I also claim the general arrangement and application of the apparatus for the drying of the solution by means of steam, either in combination with or separate from the spreading apparatus, as I contemplate the using of these conjointly or separately, as herein set forth. I do not claim drying cylinders or boxes heated by steam as my invention or discovery, but the combination and application thereof, in the way and for the purpose by me herein fully made known.

WILLIAM ATKINSON.

DEPOSITIONS

IN SUPPORT OF THE APPLICATION OF WILLIAM ATKINSON, FOR RENEWAL OF TWO CERTAIN INDIA RUBBER PATENTS.

DEPOSITION OF ELIJAH BRADY.

United States of America,
Southern District of New York, } ss.

ELIJAH BRADY being duly sworn, deposes and says, that he is in his sixty-second year, is a machinist by profession, and has been engaged in that business in the city of New York for upwards of thirty years; that he knows William Atkinson, who was formerly in the India Rubber Business, and is now in the Insurance business, and remembers very well when said Atkinson came from Massachusetts and opened an India Rubber factory in Nineteenth street, in the City of New York, about the year 1834,—which factory was quite an extensive one, being 25 feet by 90, two stories high, with basement and attic, having an engine and boiler in the basement, and the entire building being used for the manufacture of India Rubber goods. Said Atkinson kept that factory about one year, and went away in the fall of 1835, prior to the great fire in New York. During the time said Atkinson had said factory he employed in said Rubber business an average number of three men and three boys. Deponent remembers, as being in such employment, Daniel Hodgman, Artemas Hodgman, Tompkins, said Tompkins' two sons, and deponent's two sons. Said Atkinson brought with him a Spreading Machine, patented by himself, and which was used in said factory, (worked by a four or five horse power engine), having two cylinder rollers of equal size, and one larger cylinder roller. The machine had two separate shifting geering apparatus—so as to be run with an equal motion of the cylinder rollers, as a Spreading Machine, or, when needed, with an unequal or slipping motion of the same cylinder rollers, as a Masticating Machine. There

was a third cylinder roller upon that machine (as before mentioned) considerably larger than the other two rollers. This larger cylinder was made to move back and forth on a railway, by means of a rope, to accommodate the different kinds and lengths of goods to be passed through the Spreading Machine—the principle being shown in the model to be submitted herewith, marked A—and steam was let into all, or either of said three cylinders at will. This model, and the model hereinafter described, marked B, were made for Mr. Daniel Hodgman by this deponent, about one year ago, entirely from memory, and they are therefore somewhat defective in the details of construction, though representing substantially the principles involved. There was an arrangement on top of the two rollers of the Spreading Machine, which this deponent has forgotten, and therefore cannot describe: he, however, remembers that there was a contrivance for dampening the rollers. In the cylinders of this machine the heat was raised to a high temperature. From being employed by said Atkinson in the capacity of machinist, this deponent was in a position to see, and did see, some of the operations carried on at said factory. Said Atkinson made India Rubber cloth, for Car Covers, Tarpaulins, Coats, Pantaloons, Capes, Horse Collars, and Large Bags. A Jersey Rail Road Company (which this deponent thinks was the Patterson) bought a large lot of car covers. The mode adopted by said Atkinson in preparing the Rubber, —so far as witnessed by this deponent,—was first to cut the Rubber into shreds, in the cutting or dividing machine, (which said machine said Atkinson also brought with him from Massachusetts) then put it into the crushing or masticating roller machine, and after that into a vat, where it was mixed with some kind of liquor, and so spread upon cloth. The ingredients used by him were kept secret, but this deponent knows that said Atkinson used Alcohol, Spirits of Turpentine, Asphaltum and Litharges. The Spirits of Turpentine was purchased from Mr. West. In said factory said Atkinson also employed, besides the men and boys before referred to, several sailmakers, to sew up the seams of large rubber-covered sheets. The machines in use by said Atkinson were taken away when he broke up in New York, and this deponent does not know what became of them. In the year 1835 this deponent was presented by said Atkinson with a pair of India Rubber boots, of his own make, which were the first and only Rubber boots this deponent had seen up to that time. Said boots wore exceedingly well, and this deponent carried them with

him to Charleston the succeeding winter, and accidentally cut them to pieces with oyster shells, in oystering. They were of so good a quality that had it not been for such accident, deponent has no doubt said boots would have worn several years. Before leaving New York to return to Massachusetts, said Atkinson sold to a man going West a wagon load of Rubber Boots, similar to the pair presented to deponent. Said Atkinson also had quite a large number of India Rubber shoes of his own manufacture, brought with his boots and other manufactures from Massachusetts. Deponent never saw any boots or shoes made in said factory, but from examination of the boots above mentioned, he ascertained that they were formed of felt covered with rubber. This deponent was employed by said Atkinson as his machinist in said factory, and under his direction built several India Rubber machines,—one of which machines was for the single purpose of masticating the Rubber, and is represented by the model marked B. This machine was made to prevent the necessity of changing the gearing on the Spreading Machine, when, from time to time, it became necessary to change the use of that machine from spreading to masticating, or vice versa, by giving it the equal or unequal motion as desired—the only difference in it from a part of the original Spreading Machine, patented by said Atkinson, being, that said machine made by this deponent had permanent geared wheels, designed to give the cylinder rollers no other than a slipping motion, by a faster revolution of one roller than the other, and the effect of this motion was to tear the rubber, and masticate it more thoroughly.

Sworn to before me this Eighth day of December, 1856.

(*Signed*)
ELIJAH BRADY

GEO. W. MORELL,
U. S. Commissioner Southern District New York.

DEPOSITION OF DANIEL HODGMAN.

United States of America,
Southern District of New York, } ss.

Daniel Hodgman being duly sworn deposes and says that he is acquainted with and has known William Atkinson upwards of twenty years; that said Atkinson had a factory in Nineteenth Street in the City of New York, two stories high, with an attic and basement,—all of which factory was used for the manufacture of India Rubber goods; that deponent went into said Atkinson's employ at said factory in the month of May, 1835, and remained so employed until said Atkinson wound up his said business in New York aforesaid, in the fall of the same year, 1835; that during such time, to wit, from spring till fall of 1835, said Atkinson had, on an average, in his employ at said factory, in the manufacture of Rubber goods, two or three men and as many boys; and that the engine in the basement of said factory, which worked said Atkinson's Rubber machinery, was, to the best of deponent's recollection, about six horse power.

And this deponent further says that said Atkinson had in use at said factory three or more machines—two of which he used for the purpose of spreading the India Rubber compounds upon cloth, represented in principle, though in a general manner, by the model marked A: and another he used for the purpose of masticating the Rubber, represented in principle by the model worked B;—and that steam was let into the cylinders of the machines represented by the model marked A. And this deponent further says that said spreading machines ran with an even motion, and the other machine, for masticating, by an unequal motion,—which latter motion had the effect to tear and rend the Rubber as it passed through between the cylinder rollers; that the machinery now used is substantially the same as said Atkinson's inventions—about the only difference being an increase of weight and power; and that before said Atkinson's invention of his spreading and masticating machines, the large per centage of spirits of turpentine, or other solvents, then used, rendered the manufacture of Rubber goods hurtful to the health of the workmen.

And this deponent further says that said Atkinson made large quantities of Rubber Cloth, for Car Covers and many other uses, and the sheets were, for some purposes, sewed together ; that the Rubber goods so made by him at said factory were remarkably good, and a fair average of similar goods now made by the use of camphene or turpentine ; that said Atkinson at the same time made very many little articles of India Rubber Cloth, exactly like the material of the Horse Collar marked C ; and that said Atkinson had a great many pairs of India Bubber Boots, of most excellent quality, which were generally known as said Atkinson's manufacture prior to his coming to New York.

And this deponent further says that he knows very little relating to the compounds or litharges employed at said factory by said Atkinson,—except Lamp Black, Asphaltum and White Lead,—as the room where they were mixed and kept, was locked and under the charge of Artemus Hodgman since deceased, and cousin to deponent, who was in said Atkinson's employ long before deponent ; that Elijah Brady worked for said Atkinson as a machinist, and said Brady's sons also worked for said Atkinson in said factory.

And this deponent further says that he went with said Atkinson to Chelsea, Massachusetts, in the fall of 1835, and helped to set up his machinery (which was taken from said New York factory) for the Suffolk Rubber Manufacturing Company ; that in said Chelsea Manufactory the machinery and Rubber compounds were kept in separate private rooms to prevent the secrets of the manufacture from becoming publicly known ; that said Atkinson left said Suffolk Company's employ shortly afterwards, and the Company failed : at which time there were several pretty large Rubber Companies in operation—the Roxbury, at Roxbury, Massachusetts, one at Troy, New York, and others.

And this deponent further says that he has continued in the business of manufacturing goods of India Rubber, and used machinery similar to said Atkinson's, most of the time since being so as aforesaid employed by and with said Atkinson,—and when threatened with a suit, about a year ago, for the use of such machinery, provided himself with the models made by said Elijah Brady, marked A and B ; that he this deponent has always been of opinion that the machinery of said Atkinson before described covered most all the grounds claimed by other India Rubber inventors and manufacturers ; that deponent knows of no plan since discovered to masticate and mix

the Rubber and ingredients differing from the mode patented and used by said Atkinson ; that deponent bought one of said Atkinson's India Rubber Machines of Benjamin Flanders about the year 1839 ; and that in the Rubber business said Atkinson spent considerably more than he ever made in it

Sworn to before me this 15th day of December, 1856. GEO. W. MORELL, U. S. Commissioner Southern District New York.

(*Signed*) DANIEL HODGMAN.

DEPOSITION OF CHARLES GREGG

United States of America, Southern District of New York, ss.

CHARLES GREGG being duly sworn, deposes and says, that he was one of the firm of Gregg & Lane, of Tewksbury, (now Lowell,) in the State of Massachusetts, prior to the year 1835, carrying on the machinist business, and is now one of the firm of Norris & Gregg, of the City of New York, carrying on the business of manufacturing steam pipes, and that he has been well acquainted with William Atkinson, upwards of twenty-one years, who was engaged in the manufacture of India Rubber goods at Tewksbury, New York, and Chelsea, and is now engaged in the Insurance business, in the city of New York.

And this deponent further says, that, to the best of his recollection, it was in the winter of 1833 and 1834 that he built a machine for said Atkinson for spreading India Rubber upon cloth, which machine was provided with three cylinder rollers, all of equal size, one being above the two other rollers, which were upon a level, and steam was admitted into the two bottom rollers—the upper roller being adjustable, in order that it might be screwed down or up, and side screws were adjusted to one of the two lower rollers, for the purpose of accommodating the different thicknesses of cloth in passing between the rollers ; and that that machine was driven by a steam engine. And this deponent further says that another ma-

chine, which ran in water, was built in deponent's shop about the same time, by said Atkinson's directions, for preparing India Rubber by cutting it up into small pieces; and that deponent remembers said Atkinson had an India Rubber factory in Nineteenth street, in the City of New York.

And this deponent further says, that said Atkinson made, at his factory in Tewksbury aforesaid, before going to Nineteenth street, New York, cloth and different kinds of Rubber manufactures of a good quality, and, as compared with Rubber goods of present manufacture, the surface of the goods so made by said Atkinson was as good as articles now manufactured; that among the articles made at that time by said Atkinson were India Rubber boots, shoes, gloves, beds to be filled with water, many other articles, and plain cloth; that deponent bought of said Atkinson many pairs of India Rubber boots and shoes, which were manufactured by him before the year 1835; that deponent wore several pairs of said boots and shoes—generally in sloppy and wet weather—and found them to be very good, as they did not rip, and kept out the water; and that said boots and shoes were made on felted bodies. And this deponent further says that, to the best of his recollection, said Atkinson had only one machine in use at Tewksbury aforesaid

And this deponent further says, that through his acquaintance with, and building machines for, said Atkinson, he very early obtained a general knowledge of the business of India Rubber manufactures—more particularly as carried on by said Atkinson—and was acquainted with said Atkinson's manufacturing Rubber boots, shoes, cloth, and various other kinds of goods, before building any machine for said Atkinson as aforesaid. And this deponent also knows that while so, as aforesaid, engaged in building machinery for said Atkinson, that said Atkinson was much of his time busily occupied in experimenting with his machinery and compounds, in order to arrive at greater perfection in the manufacture of his goods. And this deponent further says, that he saw said Atkinson's machines at work while the Rubber was passing through, and saw it continually rolling masticating, or mixing, in the process: and that said machines would masticate the Rubber which had been already cut up in said Atkinson's Rubber-cutting, or Dividing Machine, *without any solvent whatever.* And this deponent further says, that since leaving Tewksbury aforesaid, he has continued to maintain an acquaintance with the pro-

cess of India Rubber manufacturing, by visiting Rubber factories at Harlem, New York, at New Brunswick, New Jersey, and at other places, and that the same process of manufacture is still carried on, as was carried on by said Atkinson at the time he was engaged in said Rubber business as aforesaid. And this deponent further says, that said Atkinson had in use at Tewksbury aforesaid, a hot room for curing the Rubber goods.

And this deponent further says that from his intimate knowledge of said Atkinson he can say that said Atkinson was a hatter before starting in the India Rubber business, and was worth a considerable sum of money, and that he spent it all in introducing his inventions, making experiments in, and carrying on the manufacture of Rubber goods, and, to the best of his judgment, believes that said Atkinson's losses in such business were upwards of Five Thousand Dollars. Deponent also knows that about the time of the financial troubles of 1836 and 1837 said Atkinson became broken down in health and went out West.

And this deponent further says that four or five years after making the machine for said Atkinson, described in the first part of this deposition, he went to reside at Cambridge and boarded in the same house with Edwin M. Chaffee, that at that house he saw a piece of printed rubber, rolled very thin, and asked said Chaffee what it was for, to which question said Chaffee replied that it was a shawl. Said Chaffee then spoke of a machine he had got up at Roxbury for putting rubber on cloth, and deponent replied that he (said Chaffee) was a little behind time, as deponent had made just such a machine as Chaffee had described, about two years before he (Chaffee) got out his patent; that said Chaffee then enquired the name of the person for whom deponent had made the machine,—that deponent told him the name of the person was William Atkinson, and said Chaffee replied that he had heard of him. Said Chaffee told depoment that he went to a mill where they rolled out lead, and put a piece of rubber through the rollers several times, until lubrication and pressure, warmed, softened and thinned the rubber; and that discovery led him to the invention of his said machine. Deponent saw said Chaffee's machine. It was a very heavy thing, and weighed several tons. And this deponent further says that in their conversation said Chaffee also informed deponent that large quantities of the Rubber goods manufactured by the Roxbury Company.

of which Company said Chaffee was Superintendent, were so imperfectly manufactured and badly made that they were returned from the South in the original boxes, and were secretly buried at Roxbury in the night time, boxes and all, in large holes dug for the express purpose, in order to conceal from the public the true state of the manufactures, and to enable the Company to get rid of its capital stock with less difficulty.

Sworn to before me this 16th day of December, 1856. } (*Signed*) CHARLES GREGG.

R. E. STILWELL,
U. S. Commissioner

Goods were cured by the heated roller hot room & kettle or cauldron. Intended

Great object was to secure of the tacky or sticky state of the food. This was done by using sulphur (in the shape of sulphuric acid, and refined powder from the powder mills) & curing with heat.

His plans became known by his throwing his factory open to visitors for inspection & gain assistance to carry on the work taken from his workmen going away communicating the secrets of manufacture - particularly Richd Collins. And the machinery became known on the failure of the Suffolk Co & the dispersion of artificers machines which were held by them in pledge.

Among those visitors there is reason to believe were Gordon & Chaffee. Haynes admitted to attendance to get his ideas about rubber manufacture from Artemus workman Collins.

Patent says he uses steam Chaffees patent for the clipping motion was a novelty for that motion was in use in many trades & for that reason Artemus did not intend it.